Redefining Personal Computing:
Applications of the Raspberry Pi
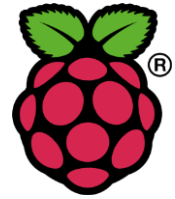Gabe Przygoda

Image via thetechblock.com

Topics

- What is the Raspberry Pi?
- How can it be used?
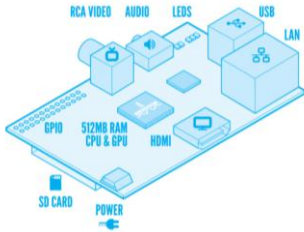- How can I get started?

The Raspberry Pi

Image via twylah.com

- Credit card sized computer
- Created by Eben Upton and colleagues
- Raspberry Pi Foundation
- Linux based
- $35 + S&H

Specifications

- Memory: 512MB RAM
- Processor: 700Mhz ARM11 chip
- Graphics: Videocore 4 GPU w/1080p decoding
- Video: HDMI port + RCA video
- Power: 5v via micro USB
- Weight: 45g
- Dimensions: 85.6mm X 56mm X 21 mm

Raspberry Pi Model B

2 USB ports
Ethernet
512MB RAM

Image via Raspberry Pi Foundation

Home Automation

- ↗ Send signals via GPIO board
- ↗ More powerful than an Arduino Microcontroller

Images via Jake Byrne

Smart TV

Image via Anup Narkhede

- ↗ Port XBMC to your Pi
- ↗ Raspbmc
- ↗ OpenElec
- ↗ Rasplex

Energy Efficient Server

- ↗ Host your own website
- ↗ Personal Cloud
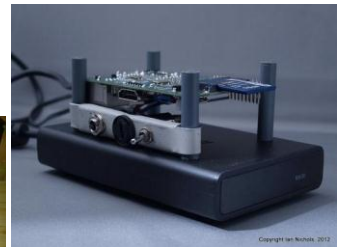- ↗ Low power draw

Image via homecomputerlab.com   *Image via Ian Nichols*

Network Attached Storage (NAS)

Image via bestbuy.com

- ↗ Raspberry Pi
- ↗ Windows Samba
- ↗ External Hard drive
- ↗ Ethernet connection

Emulation

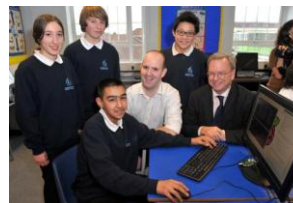*Image via pi.minecraft.net*

Image via parts-people.com   *Image via FalconXY*

- ↗ Portable computing
- ↗ Console Emulation
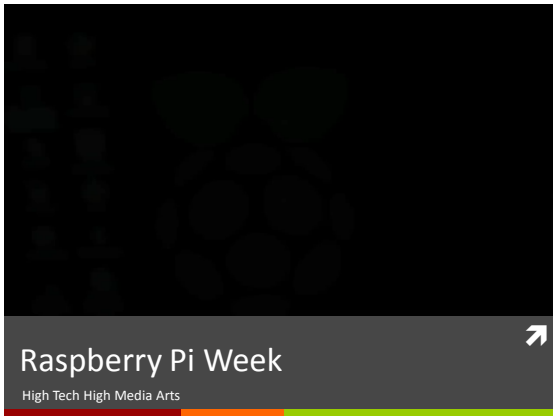- ↗ Retro code

Live Nintendo Music
David Thompson

Education

Google Giving donated 15,000 Raspberry Pis to students in the UK. *(via raspberrypi.org)*

- ↗ Coding in the Classroom
- ↗ IDLE + Scratch
- ↗ Raspberry Pi Model A
  - ↗ No Ethernet
  - ↗ 1 USB port
  - ↗ 256MB RAM
  - ↗ $25 + S&H

Raspberry Pi Week
High Tech High Media Arts

Getting Started

- Raspberry Pi Model B
- 4GB SD card (minimum)
- 5v cellphone charger (micro USB)
- Ethernet connection
- USB keyboard/mouse
- Recommended: Powered USB Hub

Write the Linux Image

Image via adrirobot.it

- Download Raspbian "wheezy" image
  - Scaled down version of Debian
  - Free
- Extract ISO file to SD card
  - Example: Win32DiskImager
  - Extensive tutorials for multiple operating systems
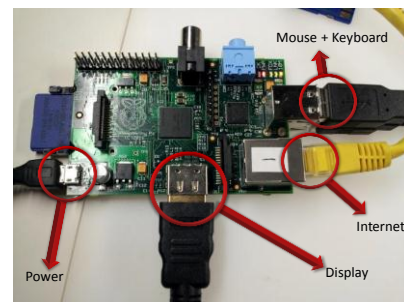- Raspberrypi.org/downloads

Connect the Pi

Mouse + Keyboard

Internet

Power

Display

Image via Derk Braakman

Boot and Play

Image via Lifehacker.com

Connect Peripherals

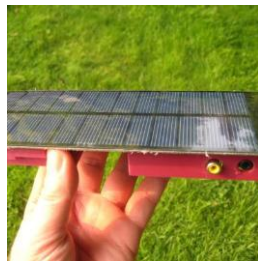## Get Creative

Image via University of Southampton

Image via Sean Michael Ragan

The Raspberry Pi Foundation

"We don't claim to have all the answers. We don't think that the Raspberry Pi is a fix to all the world's computing issues; we do believe that we can be a catalyst. We want to see cheap, accessible, programmable computers everywhere; we actively encourage other companies to clone what we're doing."

Other Boards

Image via BeagleBoard.org

Image via parallella.org
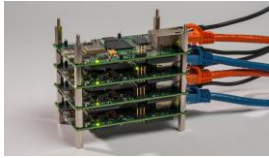
Beaglebone Black $45

Adapteva's Parallella $99

Questions?